

METHOD FOR PERSONALIZING COMPUTERIZED CUSTOMER SERVICE

TECHNICAL FIELD

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The present invention relates to facilitating interaction between a user and an information handling system. More particularly, it relates to tailoring subsequent system messages to a user as a function of the user's individual language pattern as determined from a first user system interaction.

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BACKGROUND OF THE INVENTION

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It is a well known practice for Web sites, particularly those involving e-commerce, to prompt a user to choose a specific language upon entering the site. Thereafter, the user is presented site data in the chosen language. For example, a user selection of "UK" as opposed to "USA" will cause subsequently presented site data to have UK English spellings, idioms, currency and the like. Every user, however, selecting a given language receives the exact same presentation of site data. In a similar manner, users of voice mail menus are early on presented with the opportunity to select a language in which to continue, e.g. English or Spanish. After making a specific language choice, every user choosing the same language receives the same subsequent messages.

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U. S. Patent 6,349,290 discloses a a system and method for presenting customized, personalized advice for a customer of a financial institution based on a customer profile generated by the system according to an analysis of the totality of the customer's interaction with the system. This system, and method, accommodates customer entry through a variety of modes including via a Web site, over a telephone line, at a kiosk and through an automated teller machine (ATM). A customer profile is maintained which includes a customer's choice of language and gender of voice used in presenting oral information. Many other aspects of personalized customer characteristics are also maintained relating to the customer's prior relationship history, financial status and product preferences.

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It is generally accepted that people perceive information as more credible and more helpful when that information is phrased, orally or in writing, using pronouns in the person matching the speakers' typical usage. While users of computerized systems are in many ways presented information by those systems, which information is customized on many levels, it would be
5 desirable to present information subsequent to a user's first contact with an automated computer system in a style matching that user's usual, and therefore assumed, preferred language usage pattern.

SUMMARY OF THE INVENTION

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The present invention provides a method and system for dynamically adjusting the language usage pattern of messages from an automated computer system to the user as a function of that user's previously stored language usage pattern preferences. This feature is independent of the actual language spoken/written by the user. As used herein, language usage pattern includes, but
15 is not limited to, personal pronoun preference, pacing, and volume.

The present invention in a preferred embodiment contemplates plural modes of user access to the automated computer system, such as via a Web site or via telephone. The present invention comprises front-end add on software, adaptable to existing automated, interactive computer
20 systems, for determining user preferences in pronoun person and other components of a given user's language usage pattern.

The inventive method, as implemented in software adapted for use when viewing a Web site, first presents textual information to a user upon user entry into a system having the present
25 invention. The user is prompted to select preferable paragraphs and/or phrases the user determines as more interesting or more helpful. These selected preferences become part of a user profile maintained by the system. Thereafter, any remaining text to be shown to the user is dynamically adjusted for presentation to the user in accordance with the user's previously designated and stored preferences.

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When implemented in conjunction with a voice recognition application the present invention presents questions to a user upon first entry into the system, i.e., the user's first phone call. User answers are parsed for pronoun person usage, pacing and volume. This information is stored in the user profile maintained by the system. Thereafter, subsequent messages are presented to the
5 user in a style corresponding to that user's language usage pattern.

The above and other aspects, features and advantages of the present invention will become apparent from the following detailed description which is presented having reference to the accompanying figures, wherein like reference numerals and symbols are used throughout to
10 denote the same elements.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 schematically depicts elements in a visual system embodying the present invention; and
Fig. 2 illustrates elements of the present invention in an aural system.

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DETAILED DESCRIPTION

The present invention is preferably embodied in software which is used in conjunction with a Web site or the like as well as with telephonic systems having voice recognition and generation capabilities. The present invention provides a more personalized experience for a user
20 interacting visually or aurally with an automated system, thereby improving overall user satisfaction.

As noted above, some levels of personalization are available for interactive computer systems.

The method of the present invention represents an improvement over what is currently available
25 by more closely matching computer generated and delivered information to the user's preferred language usage patterns. modifying the style but not the substance of the information provided to the user.

Style sheets are known and principally comprise a summary of editorial conventions to be
30 followed in preparing text for publication or other mode of presentation. Visual style sheets

include such features as font, color, page layout and the like but have no effect on the substantive content of the information conveyed.

In a similar manner, aural style sheets include definitions of such aspects as volume, pitch,
5 pronunciation rules, speed as well as such conventions pertaining to how and whether numerals
and punctuation marks are presented. Aural style sheets, like conventional style sheets, affect
expression rather than the substantive content of the conveyed information.

Using the present invention, in essence, provides visual and aural style sheets enhanced with
10 entries which change substantive aspects of the computer generated and delivered information
including personal pronouns and pacing.

Referring now to **Fig. 1**, an embodiment of the present invention in a graphical interactive
computer system will be described. A user machine **10**, equipped with a Web browser or the like,
15 is shown bidirectionally connected via the Web **14** to Web application **16** which includes the
present invention. Web application **16** interfaces with a database **24** at which user profiles may
be created and maintained. Web application **16** connects with a Web site **32** as those skilled in
the art will understand.

20 In operation, the apparatus illustrated in **Fig. 1**, provides a user upon an attempt to access Web
site **32**, to then be presented choices by Web application **16**. These choices are preferably
designed to include relatively short text passages representing a variety of language usage
patterns, one of which may be selected by the user. Thereafter, Web application **16** creates a user
profile **36** in database **24**. Any further communication between Web site **32** and user machine **10**
25 passes through Web application **16** which applies the user profile to information generated by
Web site **32** before it is presented to the user.

Text presented by Web application **16** to a user from which the user chooses may, for example,
contain identifying parameters which will be saved in database **24**. These parameters are not
30 seen by the user. Rather they are flags saved in the database. In the case of pronoun choice, for

example, three paragraphs could be presented by Web application **16** to the user. The paragraphs would be pre-written using 'I - You', 'We - They' and 'I - They'. The user would be prompted to select the paragraph found most pleasing. Upon user selection of a paragraph, Web application **16** would store an appropriate, corresponding flag in database **24**. Thereafter, Web application **16** would check the user selected pronoun combination flag in database **24** before presenting any further written content to the user and present that content modified to correspond to the user's choice. The content is dynamically modified before presentation based on grammatical rules established in the programming logic.

10 An implementation of the present invention in an interactive telephonic application will now be described having reference to **Fig. 2** which illustrates data flow from the user to and from the computerized system. A user accesses the system of **Fig. 2** via telephone **50** in a conventional manner. The present invention is included in server **56** which runs voice processing software and is connected to database **68** for storing customer profile information. Connected also to database **68** is automated voice response database **72**. Thus, the user may first be prompted to supply answers to questions presented by server **56**, which answers are analyzed to determine the user's preferred language usage preferences as earlier described. Further, the software of the present invention in server **56** determines from its analysis of user responses what settings to put in place for pacing, volume and gender of the voice to be generated to convey information from the automated telephonic application. A customer profile containing these values is created and stored in database **68**. A profile stored in database **68** is applied to any data to be subsequently presented to the user from database **62** before that data is input to server **74**. Server **74** includes means for generating an aural response to the user of the information from voice response database **72** via telephone **50**.

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The use of the method of the invention is particularly beneficial with systems such as those used by vehicle rental companies and financial management concerns, but may be adapted to other systems where user satisfaction with a transactional experience is important.

In operation, an exemplary embodiment of the present invention in a voice based system begins when a user calls into a financial portfolio management company or the like. The system greets the user with a voice generated message essentially asking "What would you like to do today?"

The application of the present invention then parses the user's response to identify three key

5 factors or parameters: pacing of speech; volume of speech; and gender of speech. These factors are saved in database as part of the user profile. Pacing of speech is saved as words per second.

Volume is saved as a decibel level, and gender is saved as male or female as a function of the speaker's (user's) frequency range. Thereafter, for the remainder of the transaction any voice generated responses to the user are modified to utilize the identified and saved parameters.

10 For the rest of the call pacing is set a words per second rate matching that of the user. Volume is set within a decibel level range having predetermined upper and lower limits chosen as a function of the saved user's decibel level. Gender of the saved user parameter is used to select voice response gender.

15 Those having skill in the art will appreciate that other question and response analyses may be implemented and that a user may be presented with other optional parameters to characterize the remainder of the telephonic transaction.

The present invention provides a more pleasing online or telephonic transaction experience for a
20 user by analyzing user input at the beginning of a transaction and using the results of the analysis to modify the style of the visual or aural, respectively, content thereafter presented to the user. In an online embodiment the user is prompted to choose a style. In a telephonic application the user's vocal input is parsed to determine parameters governing content delivery style.

25 The above noted and other modifications may be made without departing from the spirit and scope of the present invention as described in the claims appended below.